Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use	)))	ET Docket No. 94-32

JOINT COMMENTS OF THE ASSOCIATION FOR MAXIMUM SERVICE TELEVISION, INC. AND OTHER MAJOR TELEVISION BROADCASTING ENTITIES

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Dated: December 19, 1994

SUMMARY

In these comments, MSTV and other members of the television broadcast industry urge the Commission to allocate the 4660-4685 MHz band to wideband advanced digital video services and terrestrial fixed and mobile auxiliary broadcast operations.

At present, there is insufficient spectrum available to accommodate broadcast auxiliary operations; this problem is particularly acute in major markets. Studies conducted by both the government and the broadcasting industry have concluded that the spectrum shortage in the broadcast auxiliary bands will soon become crippling, and these projections are based solely on projected growth in analog NTSC broadcast auxiliary operations. However, broadcasters will soon have to conduct not only analog NTSC auxiliary operations, but also digital ATV auxiliary operations. Simply put, the existing broadcast auxiliary spectrum cannot accommodate existing operations, much less digital ATV broadcast auxiliary operations.

In order to resolve the crowding problem and ensure a smooth transition to digital ATV broadcasting, additional spectrum must be allocated to support broadcast auxiliary operations. Moreover, the band selected must be sufficient to accommodate both existing and projected spectrum needs. In this regard, the 4660-4685 MHz band would be an excellent

choice: the band could be used to support either existing broadcast auxiliary spectrum needs or digital ATV operations. Moreover, the band is adjacent to the 4635-4660 MHz band, which NTIA has tentatively designated for transfer from government to private use in January 1997. If the need exists, it should be possible to accommodate future growth in broadcast auxiliary operations in this adjacent band.

Congress directed that spectrum transferred from government to private use pursuant to section 923 of the Communications Act should be used in part to "promote the development and use of emerging telecommunications technologies." Using the 4660-4685 MHz band to speed the transition to digital ATV broadcasting would be fully consistent with Congress' mandate. Moreover, the public interest would be well served by an allocation that could provide relief to the crowding that presently exists in the broadcast auxiliary spectrum.

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The Association for Maximum Service Television, Inc. ("MSTV"), and the Association of America's Public Television Stations, Capital Cities/ABC, Inc.; CBS Inc.; FOX, Inc. & Fox Broadcasting Stations, Inc.; the National Association of Broadcasters; National Broadcasting Company, Inc.; Public Broadcasting Service; and the Radio-Television News Directors Association ("RTNDA") (the "Joint Commenters") hereby file comments in response to the Notice of Proposed Rulemaking, ET Docket No. 94-32, released in the above captioned docket on November 8, 1994 (the "Notice").[1/]

[1/] MSTV is a non-profit trade association of local broadcast television stations committed to achieving and maintaining the highest technical quality for the local broadcast system. NAB is a non-profit, incorporated association of radio and television stations and networks which serves and represents the American broadcast industry. RTNDA is the principal professional association for electronic journalism in the United States. The other Joint Commenters include major television broadcasting networks and affiliates' organizations. MSTV, NAB, RTNDA and the other Joint Commenters have a longstanding and vital interest in maintaining the viability of free, universal, over-the-air television broadcasting, and are deeply concerned about the need for continued uninterrupted access to sufficient auxiliary broadcast spectrum.

INTRODUCTION

In the Notice, the Commission seeks comments on various proposals for the use of three bands of spectrum that NTIA has designated for transfer from government sector to private sector use. Notice, at ¶ 9. The bands include the 2390-2400 MHz band, the 2402-2417 MHz band, and the 4660-4685 MHz band. Id. For the following reasons, the Joint Commenters continue to believe that a portion of this spectrum, specifically the 4660-4685 MHz band, should be reserved for wideband advanced digital video services and allocated to terrestrial fixed and mobile auxiliary broadcast operations.

I. Congestion in the Broadcast Auxiliary Bands Is Already Severe and Is Certain to Become Worse.

As MSTV and the other Joint Commenters have explained in their earlier filings in this docket and elsewhere, the broadcast auxiliary spectrum is overcrowded, and cannot support the present level of activity, much less accommodate the new demands that will be associated with digital ATV broadcasting.[2/] ATV/NTSC dual mode broadcasting unquestionably will create additional needs for broadcast auxiliary spectrum, and there is good reason to believe that

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[2/] See Comments of MSTV, ET Docket No. 94-32, at 2-6 (June 15, 1994); see also Comments of MSTV, IC Docket No. 94-31, at 3-7 (July 19, 1994); Reply Comments of MSTV, ET Docket No. 94-31, at 1-3 (August 5, 1994); Comments filed in Amendment of the Commission Rules to Establish New Personal Communications Services, ET Docket No. 90-314; Comments filed in Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, ET Docket No. 92-9.

the crowding which already exists in the broadcast auxiliary bands will significantly increase with the advent of ATV.[3/]

A 1992 OET spectrum study determined that spectrum crowding, particularly in major markets, precluded spectrum sharing in the 1990-2110 MHz band with PCS services. See "Creating New Technology Bands for Emerging Telecommunications Technology," FCC/OET TS92-1 (January 1992) (the "OET Study"); Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, (NPRM), 7 FCC Rcd 1542, 1544 (1992) (the "NPRM"). More recently, the Institute for Telecommunications Sciences at NTIA conducted a study that confirmed that the 1990-2110 MHz band is "already crowded in many major markets." See R. Matheson & K. Steele, A Preliminary Look at Spectrum Requirements for the Fixed Services 40-41 (May 1993) (the "ITFS Study"). Matheson and Steele documented a 14.6% annual rate of growth in broadcasters' use of the 1990-2110 MHz band from 1989-93 and projected a 15% annual growth rate in use for the next five years. Id. These findings dovetail with those contained in an industry study conducted five years ago, which found that broadcasters would need significantly more ENG capacity in the

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[3/] Indeed, as demonstrated in Kenneth J. Brown's Engineering Affidavit (attached to the Reply Comments of Capital Cities/ABC, ET Docket No. 94-32 (June 29, 1994)), the crowding problem is already having a concrete impact on the quality of the existing broadcast service. The ABC network "frequently [has] to go to extreme lengths to borrow spectrum to provide the video service our viewers have come to expect," and it will be "impossible" to support ATV auxiliary operations within the existing spectrum allocations. Id. at 1-2.

immediate future. E. Cohen, Television Auxiliary Frequencies Usage Surveys 4, 6 (June 23, 1989) (the "Cohen Study").

The lack of sufficient auxiliary spectrum is also demonstrated on a recurring basis in larger markets whenever major news events occur.[4/] Repeatedly, the Commission has had to step in with emergency ad hoc spectrum allocations to accommodate the electronic news gathering needs of television broadcasters. Even when the Commission has provided ad hoc temporary relief from overcrowding, broadcasters still have not enjoyed access to adequate spectrum.[5/]

Moreover, even parties that claim pressing needs for new spectrum, such as proponents of MSS systems, do not dispute that the broadcast auxiliary spectrum is overtaxed. See, e.g., Comments of AMSC, IC Docket No. 94-31, at 12-13 & 13 n.28 (July 15, 1994); Comments of Motorola Satellite Communications, Inc. and Iridium, Inc., IC Docket No. 94-31, at 10 n.3 (July 15, 1994); Reply Comments of AMSC, IC Docket No. 94-31, at 8 (August 5, 1994). Plainly, a problem exists, and this problem is not simply going to go away. See Comments of MSTV, ET Docket No. 94-32, at 2-6 (June 15, 1994).

The present broadcast auxiliary spectrum allocation is not sufficient to meet the existing demands of the industry, much less the increased demand for broadcast

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[4/] See McConnell, "FCC Referees World Cup Broadcast Concerns," Broadcasting Magazine, June 6, 1994, at 54.

[5/] Id.; see also ITS Study, at 41-42; Cohen Study, at 6-7.

auxiliary spectrum that the inauguration of ATV broadcasting will create. The Commission must allocate additional spectrum to accommodate digital ATV auxiliary operations in order to ensure a speedy and successful transition from analog NTSC to digital ATV television broadcasting.

II. The 4660-4685 MHz Band Should Be Used for ATV Auxiliary Operations.

To date, there have been only a few proposed uses for the 4660-4685 MHz band. Commenters have suggested that the band be allocated to microwave fixed links, to MSS feeder links, to land mobile communications, or for the operation of certain electronic devices.[6/] However, none of these commenters made a serious effort to demonstrate the technical feasibility of their proposals, nor did they establish a pressing need for the 4660-4685 MHz band. On the other hand, a compelling case -- a case that has already been made in this proceeding by the television broadcasting industry -- exists for allocating the 4660-4685 MHz band to ATV broadcast auxiliary operations. Moreover, for the reasons set forth

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[6/] See Comments of Alcatel Network Systems, ET Docket No. 94-32, at 3-4 (June 15, 1994) (microwave fixed links); Comments of the American Petroleum Industry, ET Docket No. 94-32, at 15 (June 15, 1994) (same); Comments of Loral/Qualcomm, ET Docket No. 94-32, at 6 (June 29, 1994) (MSS feeder links); Comments of Pacific Bell, ET Docket No. 94-32, at 5 (June 15, 1994) (TDD applications); Reply Comments of NABER, ET Docket No. 94-32, at 4 (June 30, 1994) (land mobile); Reply Comments of COMSAT, ET Docket No. 94-32, at 1-2 (June 30, 1994) (MSS feeder links).

below and the reasons previously stated, such an allocation would be particularly appropriate.[7/]

The legislative history of sections 309(j) and 923 of the Communications Act clearly demonstrates that Congress primarily intended that the spectrum transferred from government to private use would facilitate the development and deployment of new technologies:

> The Commission shall reassign [not less than 200 MHz of] spectrum, currently assigned to Federal Government users, to private users and to public safety agencies to promote the development and use of emerging telecommunications technologies, to protect the public interest, and for other purposes.

H. Rep. 111, 103d Cong., 1st Sess. 246, reprinted in 1993 U.S. Code Cong. & Admin. News 378, 573. Relatedly, the Senate Report to the 1993 Budget Act explains that the bill would transfer at least "200 megahertz of spectrum from the Federal Government to the FCC for new technologies," which would "enable the FCC to address the dire shortage of spectrum available for new emerging technologies." Committee on the Budget, S. Print 36, 103d Cong., 1st Sess. 67 (1993).

Allocating the 4660-4685 MHz band to wideband advanced digital video services and terrestrial fixed and mobile auxiliary broadcast operations would be fully consistent with Congress' stated objective to facilitate new

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7/ See Comments of MSTV, ET Docket No. 94-32, at 6-7 (June 15, 1994); Reply Comments of Capital Cities/ABC, ET Docket No. 94-32, at 1-3 (June 29, 1994); Reply Comments of the National Association of Broadcasters, ET Docket No. 94-32, at 1, 4-7 (June 30, 1994); Reply Comments of the National Broadcasting Company, ET Docket 94-32, at 2-4 (June 30, 1994).

and emerging technologies. It is well-established that ATV represents the next generation of popular mass communication, and its introduction into the American marketplace will undoubtedly provide consumers with a vastly improved free, over-the-air broadcast television service.[8/]

Like PCS, ATV will create important new business opportunities for the American electronics industry and improved economic opportunities for the thousands of Americans who work in this sector of the economy. "The rapid adoption of an all-digital HDTV system will promote the creation and maintenance of U.S. high-skilled jobs in the design and manufacture of HDTV receivers, displays, studio and transmission equipment, peripheral equipment, and programming and software development."[9/] Reducing crowding within the

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[8/] See, e.g., Robert K. Graves, Vice-President, AT & T, Statement Before the House Committee on Science, Space, and Technology on Behalf of the HDTV Grand Alliance Proponents (June 24, 1993) (HDTV will "bring theater-quality pictures and sound to American homes, as well as a host of new application in home entertainment, education, computer and medical imaging, factor automation, public, etc.") (available on LEXIS); McDonald, "TV Comes On-Line -- High-Definition Television Is Zooming Toward Your Living Room," The Seattle Times, June 13, 1993, at § F, p. 1 ("future HDTVs will be digital, using much more precise computer code transmission, which totally eliminates ghosts and static").

[9/] Robert K. Graves, Vice-President, AT & T, Statement Before the House Committee on Science, Space, and Technology on Behalf of the HDTV Grand Alliance Proponents (June 24, 1993) (available on LEXIS); see also Impoco, "A Helping Hand," U.S. News & World Report, May 9, 1994, at p. 17 ("most technology experts predict that demand for display technology is about to explode"); "Administration Won't Attempt to Rewrite Communications Act," Satellite Week, December 6, 1993,

(continued...)

NTSC broadcast auxiliary spectrum would also serve the public interest, because such action will ensure that broadcasters can continue to provide free, universally-available television programming over-the-air, including first rate local news reporting, during the transition to ATV broadcasting.

Furthermore, the 4660-4685 MHz band is particularly appropriate for wideband digital video services, including terrestrial fixed and mobile auxiliary broadcast operations, because broadcast auxiliary operations in the 4660-4685 MHz band would not be subject to interference from competing users of the band. Also, the 4660-4685 MHz band is contiguous with the 4635-4660 MHz band, which NTIA has slated for transfer from government to private use by January 1997. In the Matter of Report Regarding the Preliminary Spectrum Reallocation Report, FCC 94-213, at ¶ 43 & Table 1. The potential for growth into the 4635-4660 MHz band, assuming that a need for additional spectrum exists in 1997, makes the 4660-4685 MHz band especially well-suited to accommodate the future needs of broadcasters. The existence of a clear, contiguous band of spectrum immediately adjacent to the 4660-4685 MHz band would

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[9/](...continued)
at p. 1 (HDTV will result "in an incredible amount of new jobs"); "IBEW: Advisory Committee Subgroup Recommendations Expected to Foster High-Tech Jobs in the United States," PR Newswire Association, October 21, 1993 ("[t]he employment potential of HDTV is significant") (available on LEXIS); McDonald, "TV Comes on Line -- High-Definition Television Is Zooming Toward Your Living Room," The Seattle Times, June 13, 1993, at § F, p. 1 ("HDTV sets and related equipment, including HDTV video recorders, will be made here").

serve as a powerful incentive for the design, manufacture, and purchase of cost effective digital equipment that would operate in these frequencies.

The Commission has properly rejected the existing competing proposals for the allocation of the 4660-4685 MHz band. As the Commission noted, it has already provided adequate spectrum to relocate microwave incumbents displaced by the inauguration of new personal communications services. See Notice, at ¶ 22; cf. Reply Comments of the API, at 8-9. Unless and until the spectrum identified in the transition plan proves inadequate, there is no need to earmark additional spectrum for displaced microwave incumbents. Furthermore, there has been no showing that allocation of the 4660-4685 MHz band to MSS operations would be either appropriate or required.[10/]

NABER's request for additional spectrum for land mobile communications is grossly premature, given the vast new allocations to land mobile's near-perfect substitute, PCS, and the Commission's ongoing consideration of a plan to reform land mobile spectrum. See Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Services and Modify the Policies Governing Them, (NPRM), PR Docket No. 92-235, 7 FCC

[10/] See, e.g., In the Matter of Amendment of the Commission's Rules to Establish New Personal Communications Services, (Third Memorandum Opinion & Order), Gen. Docket No. 90-314, at ¶¶ 81, 88 (adopted October 19, 1994, released October 19, 1994) (Commission will revisit MSS spectrum allocations in the near future).

Rcd 8105 (1992). Until this proceeding is brought to completion, the Commission should not allocate any additional frequency to land mobile use.[11/] Finally, the proponents of using the 4660-4685 MHz band for various electronic devices[12/] have not demonstrated that the block of spectrum allocated to unlicensed PCS will be inadequate to meet their needs.

III. No Proposals Have Been Put Forward to Use the 4660-4685 MHz Band for Subscriber Services.

The Joint Commenters applaud the Commission's commitment to "ensur[ing] that the spectrum [transferred from government to private use] is put to its best and most valued use and that the greatest benefit to the public is attained." Notice, at ¶ 8. As noted above, we believe that use of the 4660-4685 MHz band to accommodate new ATV broadcast auxiliary operations would be the best possible use of the band. However, the Commission has also indicated a strong desire to sell the spectrum being transferred from public to private use. See Notice, at ¶¶ 8, 9 ("most of the services to be provided in this spectrum would likely meet the statutory criteria for auction").

11/ Indeed, given NABER's expressed concerns for spectrum efficiency, see Reply Comments of Naber, at 4, it is rather surprising that it has consistently advocated delay both in the resolution of the issues raised in the refarming docket and in the implementation of new channelization plan for land mobile spectrum.

12/ See, e.g., Comments of Pacific Bell, ET Docket No. 94-32, at 4-5 (June 15, 1994).

The Joint Commenters respectfully suggest that it is not at all clear why the "best use" of this spectrum presumptively would be the provision of subscriber services. Indeed, the public interest would be served if the 4660-4685 MHz band is used to facilitate non-subscriber based services, such as digital electronic newsgathering.

The Joint Commenters fully support the Commission's commitment not to reject the use of transferred spectrum for a new communications service because the service does not meet the statutory criteria for auction. See Notice, at ¶ 23 n.33. The Commission must keep in mind its statutory duty not to "base a finding of public interest, convenience, or necessity solely or predominantly on the expectation of Federal revenues from the use of such a system of competitive bidding." 47 U.S.C. § 309(j)(7)(B).

In that regard, the legislative history of section 309(j) makes plain that spectrum used to facilitate broadcast auxiliary operations is not subject to auction. See H. Rep. 111, 103d Cong., 1st Sess. 253, reprinted in 1993 U.S. Code Cong. & Admin. News 378, 580. "The enactment of section 309(j) should not affect the manner in which the Commission issues licenses for virtually all private services, including frequencies utilized by Public Safety Services, the Broadcast Auxiliary Service, and for subcarriers and other services where the signal is indivisible from the main channel signal." Id. (emphasis added). Congress clearly did not intend for the

Commission's new competitive bidding authority to disrupt the historically successful relationship between the government, the television broadcasting industry, and the American public, a relationship that has provided the American people with the best system of free, universal over-the-air television in the world.[13/]

IV. Technical Issues Associated With the Use of the 4660-4685 MHz Band for ATV Broadcast Auxiliary Operations Can Be Resolved Successfully.

The Commission has requested comment on a number of matters, including appropriate licensing areas, limitations on eligibility, and other technical constraints or parameters on the use of particular bands for specific communications services. See Notice, at ¶ 23. Although this request appears to be directed primarily at new proposals offered in response to the Notice, the Joint Commenters nevertheless think that it would be appropriate to identify some of the regulatory issues related to the use of the 4660-4685 MHz band for ATV broadcast auxiliary operations.

Presumably, eligibility for the use of the band would be limited to those entities currently permitted to use the existing broadcast auxiliary bands: local television

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13/ See H. Rep. 213, 103d Cong., 1st Sess. 479 (1993) (incorporating by reference prohibitions on the use of competitive bidding set forth in H. Rep. 111); H. Rep. 111, 103d Cong., 1st Sess. 253 (exempting spectrum used for primary broadcast and auxiliary broadcast operations from competitive bidding), reprinted in 1993 U.S. Code Cong. & Admin. News 378, 580; Committee on the Budget, S. Print 36, 103d Cong., 1st Sess. 66 (1993) (exempting "terrestrial radio and television broadcast" services from spectrum auctions).

broadcasters, broadcast television networks, and cable operators. See 47 C.F.R. §§ 2.106, 74.602. The technical parameters of digital broadcast auxiliary operations have not yet been determined. Thus, it is simply not possible to determine at this juncture whether any other communications applications could coexist in the 4660-4685 MHz band if the Commission dedicates the band to ATV broadcast auxiliary operations. The issue of spectrum sharing within the band could be addressed more fully once more is known about the specific mode and method of ATV broadcast auxiliary transmissions.

With respect to license areas, the band would probably be used primarily for mobile communications, just as broadcasters currently use the existing broadcast auxiliary spectrum at 2 GHz, or for fixed relay links, just as broadcasters currently use the broadcast auxiliary spectrum at 7 GHz (6875-7125 MHz). Although the precise nature of ATV auxiliary operations is uncertain, a large portion of the spectrum would be on a shared-use basis within the same area. None of the systems currently being developed would require exclusive license areas for broadcast auxiliary operations.

However, the Joint Commenters believe that the Commission will ultimately need to adopt a channelization scheme that would ensure the orderly and efficient use of the 4660-4685 MHz band. See generally K. Brown & W. Horne, "Characteristics and Model of Electronic News Gathering

Systems Operating in the 1990-2110 MHz Band," Task Group 7/1, Document USTG 7-1/101, at p. 4-5 (September 10, 1993). Of course, without a transmission system or transmission equipment, it is not yet possible to propose a specific channelization plan. The Joint Commenters, in conjunction with representatives of the electronics manufacturing community, intend carefully to study the technical issues associated with the use of the 4660-4685 MHz band for ATV broadcast auxiliary operations. The broadcasting industry and electronics manufacturers should be able to work cooperatively to create equipment and engineering designs that will ensure that the spectrum allocated to digital ATV auxiliary operations will be used efficiently.

V. It Might Be Possible to Use the 4660-4685 MHz Band for Both Existing Analog NTSC and Digital ATV Auxiliary Broadcast Operations.

As noted above, many of the technical aspects of ATV broadcast auxiliary service have not yet been determined. A transmission standard has not yet been adopted, and equipment manufacturers are not yet producing hardware to support ATV broadcast auxiliary operations. It is, of course, difficult to extrapolate conclusions regarding co-location of ATV and NTSC auxiliary operations from the experience of sharing within the NTSC broadcast auxiliary spectrum.[14/] Until a

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[14/] At present, all ENG systems "cannot operate simultaneously" and "only one transmission per channel per receive site at a time is usually possible." K. Brown & W. Horne, "Characteristics and Model of Electronic News Gathering (continued...)

transmission system and equipment using the system is available, it is not possible to determine with a high degree of certainty whether NTSC and ATV auxiliary broadcast operations will be able to coexist in the same spectrum band. Simply put, interference characteristics cannot be determined in the abstract.

It may prove feasible to operate digital ATV and analog NTSC broadcast auxiliary operations in the 4660-4685 MHz band without causing harmful interference to either NTSC or ATV operations. However, until more is known about the ATV transmission standard and equipment, it is impossible to draw any firm conclusions.

In any event, the available evidence supports the view that the 4660-4685 MHz band could be used successfully for wideband advanced digital video services and/or terrestrial fixed or mobile auxiliary broadcast operations. Over the coming months, the Joint Commenters intend to explore more fully the technical aspects of the use of this band for such services. At present, we are reasonably confident that the manufacturing community can build cost-effective equipment capable of supporting broadcast auxiliary operations in the 4660-4685 MHz band.

[14/](...continued)
Systems Operating in the 1990-2110 MHz Band," Task Group 7/1, Document USTG 7-1/101, at p. 4 (September 10, 1993).

CONCLUSION

In sum, the current allocation of spectrum for auxiliary broadcast operations is barely capable of accommodating the existing NTSC demands in larger markets, and is clearly insufficient to meet the anticipated ATV needs of television broadcasters. The Commission should promote the continuity of high quality, universally available, and locally-based broadcast television service by providing the spectrum necessary to support broadcast auxiliary operations, including ATV broadcast auxiliary operations. Allocation of the 4660-4685 MHz band to wideband advanced digital video services and terrestrial fixed and mobile auxiliary broadcast operations would constitute a significant step toward resolving the present overcrowding problem, and would help to pave the way for the transition to dual mode NTSC/ATV television broadcasting.

Respectfully submitted,

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December 19, 1994